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10/596,155	08/04/2006	Hirokazu So	P30050	2850

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EXAMINER
BIRKHIMER, CHRISTOPHER D

ART UNIT	PAPER NUMBER
2186	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/596,155	SO ET AL.
	Examiner	**Art Unit**	
	CHRISTOPHER D. BIRKHIMER	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>01 June 2006</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1 - 13</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1 - 13</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>01 June 2008</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date <u>09/12/2006</u>.
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

This Office Action is in response to application 10/596155 submitted 06/01/2006. The Examiner acknowledges the amendments to claims 1, 4, 6, and 8 along with the addition of claims 10 – 13. Claims 1- 13 are pending in the case.

Claim Objections

1.   Claims **6 and 13** are objected to because of the following informalities:

Claim 6 recites on line 5 "...clusters, the cluster is unit for storing data for a file system." The Examiner suggests the Applicant amend the claim for grammatical reasons similar to "...clusters, the cluster is <u>a</u> unit for storing data for a file system."

Claim 13 recites on line 2 "...wherein, in case that stored data in the information recording medium is..." The Examiner suggests the Applicant amend the claim for grammatical reason similar to "wherein, in <u>the</u> case that <u>the</u> stored data in the information medium is..."

The above list of claim objections, due to grammatical reasons, are not meant to be an all inclusive list of claim objections and the Examiner asks the assistance of the Applicant to check for grammatical issues in the claims.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3.   Claims **1 - 9** are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

Claim 1 recites the limitation "the other block" in line 15. There is no previous

mention of another block in the claim. There is insufficient antecedent basis for this

limitation in the claim.

Claims 2 – 5 are rejected for being dependent on rejected **claim 1**.

Claim 6 recites the limitation "the other block" in line 21. There is no previous

mention of another block in the claim. There is insufficient antecedent basis for this

limitation in the claim.

Claims 7 – 9 are rejected for being dependent on rejected **claim 6** above.

The above mentioned list of 35 U.S.C. §112, second paragraph, rejections are

not meant to be an all inclusive list of all 35 U.S.C. §112, second paragraph, issues and

the Examiner asks the assistance of the Applicant to verify that the claims follow all 35

U.S.C. §112 guidelines.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

6.   Claims **1 - 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's Admitted Prior Art hereinafter known as AAPA in view of Chiba (Pat

6,411,552).

        With regard to **claim 1**, AAPA teaches a recording method of recording data

[Specification, Page 1, Lines 15 – 17] to an information recording medium

[Specification, Page 1, Lines 15 – 19 and 23 – 25], the information recording medium

[Specification, Page 1, Lines 15 – 19 and 23 – 25] having a recording area for storing

data and stored data which is managed by a file system **[Specification, Page 1, Line

33; Specification, Page 2, Line 2]**, wherein

        the recording area of the information recording medium **[Specification,

Page 1, Lines 15 – 19 and 23 – 25]** is managed in block units **[Specification, Page 2,

Lines 8 – 9]**, and each block includes a specified number of clusters as units for storing

data for the file system **[Specification, Page 2, Lines 14 – 18]**.

        However, AAPA does not specifically disclose the limitation of when necessary to

record data in a new free area searching for a block which has a specified threshold

number of more unused clusters, managing the searched block by units of blocks,

searching for a valid block from the managed blocks at data processing, and writing the data in the searched valid block prior to the other block.

Chiba discloses the limitation of when necessary to record data **["file", Column 14, Lines 44 – 45]** in a new free area **["empty cluster", Column 14, Lines 61 – 62]** searching for a block which has a specified threshold number of more unused clusters **[Column 14, Lines 61 – 67, The size of the file determines the size of the black of clusters that is searched for unused clusters]**, managing the searched block by units of blocks **[Fig 4, This shows clusters are also managed as blocks]**, searching for a valid block **[Column 14, Lines 61 – 67, The size of the file determines the size of the block of clusters that is searched for unused clusters]** from the managed blocks **[Fig 4, This shows clusters are also managed as blocks]** at data processing **[Column 14, Lines 61 – 67]**, and writing the data in the searched valid block prior to the other block **[Column 15, Lines 1 – 8]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Chiba in AAPA, because data erasing, write-in processing, and the like can be accelerated with the teachings of Chiba **[Column 4, Lines 12 - 13]**.

With regard to **claim 2**, Chiba discloses the data are written in unused clusters in a valid block which has been searched **[Column 15, Lines 1 – 8, The block of clusters has been searched to determine there are enough unused clusters for the file]**.

With regard to **claim 3**, Chiba discloses counting the unused clusters contained in each block in the recording area **[S603, Fig 12]**;

determining the valid block on the basis of the counting result **[S605, Fig 12; Column 15, Lines 1 – 8]**;

generating and holding a valid free area list **["FAT", Column 14, Lines 58 - 60]** which is list information related to the valid block **[S608, Fig 12; Column 14, Lines 61 – 67, The size of the file determines the size of the block of clusters that is searched for unused clusters]**;

searching for the valid block by referring to the valid free area list at data recording process **[S602, S603, and S604, Fig 12]**.

With regard to **claim 4**, AAPA teaches an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**.

Chiba discloses information about the threshold is acquired from the information recording medium **[Column 14, Lines 49 – 51, The data amount of the file is the threshold of the number of unused clusters is required for a desired block]**.

With regard to **claim 5**, AAPA teaches the use of clusters **[Specification, Page 2, Lines 14 – 18]**.

Chiba teaches the threshold is a value of ½ or more of the number of clusters included in one block **[Column 14, Lines 54 – 67; Column 15, Lines 1 – 8, The threshold is 100% of the clusters in a block since a block is defined by a set number of unused blocks that is large enough to contain the file that is to be written to memory]**.

With regard to **claim 6**, AAPA teaches a data processing apparatus **[Specification, Pages 1 – 2, The Applicant discloses writing data to a memory device which implies there is an data processing apparatus]** for writing or reading data **[Specification, Page 1, Lines 15 – 17]** to or from an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, wherein

a recording area of the information recording medium **[Specification, Page 1, Line 33; Specification, Page 2, Line 2]** is managed in block units **[Specification, Page 2, Lines 8 – 9]**, and each block **[Specification, Page 2, Lines 8 – 9]** includes a specified number of clusters, the cluster is unit for storing data for a file system **[Specification, Page 2, Lines 14 – 18]**;

the data processing apparatus **[Specification, Pages 1 – 2, The Applicant discloses writing data to a memory device which implies there is an apparatus to perform the writing]** comprises:

an I/O processing section that processes input and output of information for the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is implied there is an I/O processing section associated with the information recording medium in order to save to and read from the information recording medium]**;

a file system controller **[Specification, Page 2, Lines 1 – 7]** that manages data stored in the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, as a file;

a data processor that controls writing and reading of data to and from the information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is implied there is a data processor associated with the information recording medium in order to save to and read from the information recording medium]**.

However, AAPA does not specifically disclose the limitation of a valid free area manager that manages, by units of blocks, information for a block containing a specified threshold number or more of unused clusters in an area of the information recording medium and when necessary to record data to a new free area, the data processor, as a control, searches for a valid block from managed blocks with reference to the information held in the valid free area manager, and writes data to the searched valid block prior to the other block.

Chiba discloses a valid free area manager **[S603, Fig 12; "FAT", Column 14, Lines 54 – 60, This shows the FAT contains the information for a block, which is what clusters are used and which are unused]** that manages, by units of blocks **[S605, Fig 12; Column 15, Lines 1 – 8]**, information for a block containing a specified threshold number or more of unused clusters in an area of the information recording medium **[Column 14, Lines 61 – 67, The size of the file determines the size of the block of clusters that is searched for unused clusters]** and when necessary to record data **["file", Column 14, Lines 44 – 45]** to a new free area **["empty cluster", Column 14, Lines 61 – 62]**, searching for a valid block **[Column 14, Lines 61 – 67, The size of the file determines the size of the block of clusters that is searched for**

unused clusters] from managed blocks **[Fig 4, This shows clusters are also
managed as blocks]** with reference to the information held in the valid free area
manager **[S603 – S605, Fig 12; "FAT", Column 14, Lines 54 – 60, This shows the
FAT contains the information for a block, which is what clusters are used and
which are unused]**, and writes data to the searched valid block prior to the other block
[Column 15, Lines 1 – 8].

It would have been obvious to someone of ordinary skill in the art at the time of
the invention to use the teachings of Chiba in AAPA, because data erasing, write-in
processing, and the like can be accelerated with the teachings of Chiba **[Column 4,
Lines 12 - 13]**.

With regard to **claim 7**, Chiba discloses the valid free area manager **[S603, Fig
12; "FAT", Column 14, Lines 54 – 60, This shows the FAT contains the
information for a block, which is what clusters are used and which are unused]**
holds a valid free area list which is list information **[A FAT table is a list]** related to a
valid block which is a block including a specific number or more of unused clusters **[Fig
4, Column 14, Lines 54 – 60, This shows the FAT table is searched to determine if
there are enough unused clusters for a block the size of a file. The figure also
shows that a cluster and a block can be the same size. This then shows that each
cluster in the FAT table that is unused is a block with a specific number of one
unused clusters]**.

With regard to **claim 8**, AAPA teaches an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**.

Chiba discloses information about the threshold is acquired from the information recording medium **[Column 14, Lines 49 – 51, The data amount of the file is the threshold of the number of unused clusters is required for a desired block]**.

With regard to **claim 9**, AAPA teaches the use of clusters **[Specification, Page 2, Lines 14 – 18]**.

Chiba teaches the threshold is a value of ½ or more of the number of clusters included in one block **[Column 14, Lines 54 – 67; Column 15, Lines 1 – 8, The threshold is 100% of the clusters in a block since a block is defined by a set number of unused blocks that is large enough to contain the file that is to be written to memory]**.

With regard to **claim 10**, AAPA teaches a recording area of an information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]** having a recording area for storing data and stored data which is managed by a file system **[Specification, Page 1, Line 33; Specification, Page 2, Line 2]**, wherein

the recording area of the information recording medium **[Specification, Page 1, Line 33; Specification, Page 2, Line 2]** is managed in block units **[Specification, Page 2, Lines 8 – 9]**, and each block **[Specification, Page 2, Lines 8 – 9]** included a

specified number of clusters as unit for storing data for file system **[Specification, Page 2, Lines 14 – 18]**.

However, AAPA does not specifically disclose the limitation of judging whether the number of unused clusters contained in the block is within a specified range, for each block of the information recording medium and moving data to unused clusters contained in the block having the number of unused clusters which is within the specified range, from used clusters in the other block.

Chiba discloses judging whether the number of unused clusters contained in the block is within a specified range, for each block of the information recording medium **[Column 14, Lines 61 – 67, The size of the file determines the size of the block of clusters that is searched for unused clusters]** and moving data **["file", Column 14, Lines 44 – 45]** to unused clusters **["empty cluster", Column 14, Lines 61 – 62]** contained in the block having the number of unused clusters **["empty cluster", Column 14, Lines 61 – 62]** which is within the specified range, from used clusters in the other block **[Column 49 – 50; Column 15, Lines 1 – 8, This shows the file was somewhere else in a memory device since the CPU knows the size of the file and Chiba discloses the clusters of memory can also be considered blocks so the file was stored in another block in some memory other than where it is being stored now. If the file was in the memory already there would be need for the CPU to go through the steps and time of calculating where to store the file since it would already be in the memory]**.

It would have been obvious to someone of ordinary skill in the art at the time of

the invention to use the teachings of Chiba in AAPA, because data erasing, write-in

processing, and the like can be accelerated with the teachings of Chiba **[Column 4,**

Lines 12 - 13].

With regard to **claim 11**, Chiba discloses the specified range is 1 or more and

less than ½ of the number of clusters included in one block **[Fig 4; Specification, Page**

15, Lines 1 – 8, The figure and the cited lines from the specification show that the

number of clusters in a block can be between 1 and however many is needed to

fit a file depending on the file size. This then shows specified range at times will

be 1 or more if the file is small or big and compared to some files in big blocks a

small file will fit in a small number of clusters which makes a small block and the

number of clusters in the small block at times will be ½ or less than another

larger block in the system].

With regard to **claim 12**, AAPA discloses the use of a FAT table **[Specification,**

Page 2, Lines 4 – 7].

Chiba discloses the use of a FAT table and then updating the FAT table **[Fig 12;**

Column 14, Lines 44 – 67; Column 5, Lines 1 – 32].

However, AAPA in view of Chiba does not specifically disclose the limitation of

that stored data in the information recording medium is managed by FAT file and the

FAT file system has first and second FAT tables as link information, and when a valid

FAT flag showing which one of the first and second FAT tables is valid is provided, the

re-arrangement method further includes other processing steps. The Examiner wishes

to point out that the above limitation of addition processing steps is not required by the

claim since the other processing steps are dependent on conditional steps of a FAT file

system with two tables as link information and when a valid FAT flag showing which one

of the FAT tables is valid. There is no requirement that the information recording

medium has to be managed by a FAT file system with two tables as link information and

with a valid FAT flag showing which one of the FAT tables is valid. Therefore, the

limitations of …

> "writing the second FAT table to the information recording medium;
> setting the valid FAT flag to show that the second FAT table is valid;
> copying the content of the second FAT table to the first FAT table in the information
> recording medium;
> setting the valid FAT flag to show that the first FAT table is valid"

…is not required by the claim since the condition of the limitations being

executed is not required by the claim.

With regard to **claim 13**, AAPA teaches a data processing apparatus

[Specification, Pages 1 – 2, The Applicant discloses writing data to a memory

device which implies there is an data processing apparatus] for writing or reading

data **[Specification, Page 1, Lines 15 – 17]** to or from an information recording

medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25]**, comprising:

an I/O processing section that processes input and output of information for the

information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is**

implied there is an I/O processing section associated with the information

recording medium in order to save to and read from the information recording

medium];

a file system controller **[Specification, Page 2, Lines 1 – 7]** that manages data

stored in the information recording medium **[Specification, Page 1, Lines 15 – 19 and**

23 – 25], as a file;

a data processor that controls writing and reading of data to and from the

information recording medium **[Specification, Page 1, Lines 15 – 19 and 23 – 25, It is**

implied there is a data processor associated with the information recording

medium in order to save to and read from the information recording medium].

However, AAPA does not specifically disclose the limitation of a block judging

section that classifies each block in the information recording medium according to the

number of unused clusters contained in each block and holds information about the

classification and wherein as a control, the data processor, with reference to the

classification information held in the block judging section, judges for each block

whether the number of unused clusters contained in a block is within a specific range or

not, and when the block has unused clusters within the specified range, moves data to

unused clusters contained in the block from used clusters of other block.

Chiba discloses the limitation of a block judging section **[Fig 4; S604, Fig 12,**

This shows a block can contain one cluster which then shows step S604 is

checking a cluster and a block at the same time] that classifies each block in the

information recording medium according to the number of unused clusters contained in

each block **[Fig 4; S604, Fig 12, The block or cluster is either used or unused]** and

holds information about the classification **[Column 14, Lines 54 – 60, The information about used and unused blocks or clusters is stored in the FAT table]** and wherein as a control, the data processor, with reference to the classification information held in the block judging section **[Column 14, Lines 54 – 60, The information about used and unused blocks or clusters is stored in the FAT table]**, judges for each block whether the number of unused clusters **["empty cluster", Column 14, Lines 61 – 62]** contained in a block is within a specific range or not, and when the block has unused clusters **["empty cluster", Column 14, Lines 61 – 62]** within the specified range, moves data to unused clusters contained in the block **[Column 14, Lines 49 – 67; Column 5, Lines 1 – 8, This shows the process of judging whether the unused clusters in a block, the size of the file to be written, are within a specified range which is the size of the file to be written or larger]** from used clusters of other block **[Column 49 – 50; Column 15, Lines 1 – 8, This shows the file was somewhere else in a memory device since the CPU knows the size of the file and Chiba discloses the clusters of memory can also be considered blocks so the file was stored in another block in some memory other than where it is being stored now. If the file was in the memory already there would be need for the CPU to go through the steps and time of calculating where to store the file since it would already be in the memory]**.

It would have been obvious to someone of ordinary skill in the art at the time of the invention to use the teachings of Chiba in AAPA, because data erasing, write-in

processing, and the like can be accelerated with the teachings of Chiba **[Column 4,**

Lines 12 - 13].

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Cho (Pat 5,699,549) discloses keeping clusters in memory **[Figs 2 – 3]** and

keeping a list of unused clusters in a table **[Column 2, Lines 40 – 62]**.

Davis et al. (Pat 5,210,865) discloses data in clusters and comparing the data in

two different clusters until the data matches **[Column 5, Lines 6 – 15]**.

Wilson, JR. et al. (Pat 4,755,930) discloses that data is moved from one cluster

to another cluster **[Column 9, Lines 34 – 49]**.

Direction of Future Correspondence

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to CHRISTOPHER D. BIRKHIMER whose telephone

number is (571)270-1178. The examiner can normally be reached on M-H 7:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt Kim can be reached on 571-272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Christopher D Birkhimer
Examiner
Art Unit 2186

/Christopher D Birkhimer/
Examiner, Art Unit 2186

/Pierre-Michel Bataille/
Primary Examiner, Art Unit 2186
September 30, 2008